

## Spiders from some Pacific Islands

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KNOWLEDGE OF THE SPIDERS of the Pacific is largely the result of the work of Berland (1934, *et. seqq.*). He has published a number of papers dealing with the spiders of the New Caledonian and New Hebridean region; of Samoa; and of the Marquesas, Society, and Austral groups, and other islands in the south-eastern Pacific. Recently I have completed a study of the spiders of Western Samoa (not yet published) based on two summers' collecting. It adds considerably to the list of species already known, bringing it to a total of 123 and includes several families not previously known to have representatives in the Pacific region. It is clear that much intensive collecting is needed before more than tentative conclusions can be drawn regarding the geographical distribution of spiders in the Pacific. The present paper records 31 species of spiders from the islands of Niue, Pukapuka, Rarotonga, Tokelau, Tongatabu, and Pitcairn from which few or none have been known. Forty-nine of the records are new. A new genus and two new species of Salticidae are described.

Niue is situated about 400 miles SSW of Samoa and the same distance WNW of Tongatabu. It consists of a single low-lying island some 14 miles long by 10 miles wide. I am indebted to Mr. P. T. Church for sending me specimens of five species, none having been recorded previously.

Pukapuka is an atoll in the northern part of the Cook group, 720 miles northwest of

Rarotonga. It consists of several islets scattered around the reef, with an area of 2 square miles which is said to be decreasing. I am indebted to Dr. G. N. Davies for a collection of eight species, none having been recorded previously. They are all species known from Samoa.

Rarotonga is one of the Cook Islands, lying some 850 miles east of the Tonga group. It is a high volcanic island, rising to about 3,000 feet, and has an area of some 26 square miles. Berland records five species from there. I am indebted to Dr. G. H. Satchell for the present collection of nine species, which raises the total to 13. One seems to be new and is described here and tentatively placed in a new genus. The others are all known from Samoa except two, one, *Mollicia microphthalma*, recorded by Berland, the other, *Sandalodes calvus*, a new record. Both occur in the island groups to the east and then again far to the west, *M. microphthalma* in New Caledonia and Loyalty, and *S. calvus* in Australia. It is curious that neither has been found in Samoa.

The Tokelau Islands consist of a group of three atolls lying 270 miles north of Western Samoa, with areas of 1,350, 650 and 500 acres respectively. No spiders have been recorded from them. I am indebted to Dr. and Mrs. J. C. Lopdell for a collection from the island of Atafu, the smallest of the three. It consists of 13 species, all known from Samoa. The most remarkable of these is *Apiacera minuta*, one of the Ochyroceratidae, a family which has not been recorded previously in the Pacific. This species and *Conopistha unimaculata* I am describing elsewhere (Marples, in press).

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The Tonga Islands are an extensive group lying some 450 miles east of Fiji. They are very low islands, especially Tongatabu which has an area of about 100 square miles and a height of only 200 feet. Berland records 20 species, and the present collection, from Tongatabu only, includes 15, bringing the total to 31 species. One appears to be new and is described here.

Pitcairn Island does not belong to the same region as the others included here. It lies to the southeast of the Tuamotu Group, some 1,500 miles east of the Cook Islands. It is small, with an area of 1,200 acres and a height of 1,000 feet. Berland records two species and the present collection adds four more. I am indebted to Mrs. O. Clark and her family for the collection.

Measurements were made with a micrometer eyepiece, converted to millimeters and given to the nearest second decimal place. The leg formula is written as the legs in order of length above the line and the leg indices below it. For example, 1 2 4 3 indicates that Leg I is the longest and Leg III is the shortest. The leg index is calculated by dividing the length of the leg by the length of the carapace. The tibial index, giving a measure of the stoutness of the leg, is calculated by dividing the combined lengths of the tibia and patella by the breadth of the proximal end of the patella. It is given for Legs I and IV in each case. These methods of measurement follow those of Petrunkevitch. Dimensions of the abdomen, though of course not precise, are given to indicate its approximate shape.

#### LIST OF THE SPECIES RECORDED DICTYNIDAE

*Syroris mumfordi* Berland. Tokelau.

#### ULOBORIDAE

*Uloborus geniculatus* Olivier. Tokelau.  
*Uloborus tenellus* L. Koch. Tokelau.

#### SCYTODIDAE

*Scytodes striatipes* L. Koch. Tongatabu.  
*Scytodes marmorata* L. Koch. Tongatabu.

#### OCHYRO CERATIDAE

*Apiacera minuta* Marples. Tokelau.

#### PHOLCIDAE

*Pholcus ancoralis* L. Koch. Rarotonga.  
*Physocyclus globosus* Taczanowski. Pukapuka.  
*Smeringopus elongatus* Vinson. Tokelau, Tongatabu, Pukapuka.

#### CLUBIONIDAE

*Clubiona samoensis* Berland. Rarotonga.  
*Corinna* sp. Pitcairn.

#### SPARASSIDAE

*Heteropoda venatoria* (Linn.). Niue, Pitcairn, Pukapuka, Rarotonga, Tokelau, Tongatabu.

#### SALTICIDAE

*Bavia aericeps* Simon. Pukapuka, Tokelau.  
*Menemerus bivittatus* Dufour. Tongatabu.  
*Plexippus payculli* Audouin. Tokelau.  
*Sandalodes calvus* Simon. Rarotonga.  
*Ascyllus pterygodes* (L. Koch). Niue, Tokelau, Tongatabu.  
*Athamas whitmei* Cambridge. Pukapuka, Rarotonga, Tokelau.  
*Thorellia ensifera* Thorell. Pukapuka, Rarotonga, Tokelau.  
*Hasarius albocircumdatus* L. Koch. Tongatabu.  
*Trite longipalpis* n. sp. Tongatabu.  
*Avarua satchelli* gen. et sp. nov. Rarotonga.

#### LYCOSIDAE

*Lycosa tongatabuensis* Strand. Pukapuka.  
*Lycosa* sp. Tongatabu.

#### THERIDIIDAE

*Conopistha samoensis* (L. Koch). Tongatabu.  
*Conopistha unimaculata* Marples. Tongatabu, ?Niue.

## TETRAGNATHIDAE

*Tetragnatha panopea* L. Koch. Tokelau.

## EPEIRIDAE

*Epeira theisi* Walckenaer. Pitcairn, Pukapuka, Rarotonga, Tokelau, Tongatabu.

*Cyrtophora moluccensis* Doleschall. Niue, Tongatabu.

*Nephila prolixa* L. Koch. Niue, Tongatabu.

*Nephila flagellans* L. Koch. Tongatabu.

## DICTYNIDAE

*Syroris mumfordi* Berland

4 ♀ imm., 1 ♂ imm. Tokelau. Described from the Marquesas, this species has been recorded also from Samoa. These specimens agree with those from Samoa in having 3 prolateral and 2 retrolateral teeth on the cheliceral groove, and the PME one and one-half diameters apart. Those from the Marquesas have 2 and 1 teeth and the PME are 1 diameter apart.

## ULOBORIDAE

*Uloborus geniculatus* Olivier

9 ♀ and 3 imm., 4 ♂. Tokelau. This species seems to be more or less universally distributed in the Pacific.

*Uloborus tenellus* L. Koch

1 imm. Tokelau. This immature specimen apparently belongs to this species which has previously been recorded only from Samoa.

## SCYTODIDAE

*Scytodes marmorata* L. Koch

1 ♀. Tongatabu. It does not seem to have been recorded previously.

*Scytodes striatipes* L. Koch

1 ♀. Tongatabu. This is the colour form with the completely chestnut-coloured carapace.

## OCHYROCERATIDAE

*Apiacera minuta* Marples

1 ♀, 1 ♂. Tokelau. This species is described from Samoa. The family was not known previously from the Pacific, but I have specimens from Fiji, not yet determined specifically, of both *Apiacera* and another genus found in Samoa.

## PHOLCIDAE

*Pholcus ancoralis* L. Koch

1 ♂. Rarotonga. New record. The species is recorded also from Samoa, Marquesas, Tahiti, and the Austral Islands.

*Physocyclus globosus* Taczanowski

1 ♀. Pukapuka. A cosmopolitan species previously recorded from Samoa and the Marquesas.

*Smeringopus elongatus* Vinson

1 ♀. Tongatabu. 11 ♀ and 1 imm., 1 ♂ and 2 imm. Tokelau. 5 ♀ and 1 imm., 1 ♂ imm. Pukapuka. 3 ♀. Rarotonga. 5 ♀. Pitcairn. A widespread species in the Pacific, but apparently not recorded previously from these localities.

## CLUBIONIDAE

*Clubiona samoensis* Berland

1 ♀. Rarotonga. New record, known previously from Samoa, Tahiti, and Rapa.

*Corinna* sp.

1 ♂ imm. Pitcairn. This specimen does not have the thick pitted cuticle of *C. cetrata*, known from adjacent islands, but this might be due to its immaturity. It is included here as the family has not been recorded from Pitcairn.

## SPARASSIDAE

*Heteropoda venatoria* (Linn.)

This species, found throughout the tropics, is often referred to as *H. regia* Fabricius, but

Bonnet (1951) has considered the question and decided that the name *H. venatoria* (Linn.) should be used. It was collected on all the islands under consideration. There is another very similar species, *H. nobilis* L. Koch, which is distinguishable most certainly by the sexual organs. An immature specimen from Rarotonga might belong to this species.

### SALTICIDAE

#### *Bavia aericeps* Simon

1 ♀. Tokelau. 1 ♂ and 2 imm. Pukapuka. This species has a very wide distribution, ranging from the Marquesas and Hawaii to Malaya and the Philippines. Compared with Samoan specimens these have a much paler abdomen, the same colour pattern being distinguishable but only very faintly marked.

#### *Menemerus bivittatus* Dufour

1 ♀, 2 ♂, and 2 imm. Tongatabu. Cosmopolitan and widespread in the Pacific.

#### *Plexippus payculi* Audouin

1 ♂ and 2 imm. Tokelau. Cosmopolitan. As compared with Samoan specimens the longitudinal dark bands extend more posteriorly on the carapace and abdomen, and the femora are less dark.

#### *Sandalodes calvus* Simon

1 ♂. Rarotonga. The species is recorded from Queensland and from the Marquesas and Tahiti, where it is common. Berland (1942) has commented on the interesting distribution in the eastern Pacific. The present new record from Rarotonga appears to be its most western occurrence in this region. To judge from Berland's figure (1933) its colour pattern is considerably paler than a specimen from the Marquesas.

#### *Ascyrtus pterygodes* (L. Koch)

2 ♂. Tokelau. 2 ♀ imm. Tongatabu. 1 ♀, 1 ♂. Niue. Recorded from many islands between the Marquesas and the New Hebrides. The

Tokelau specimens are slightly paler than ones from Samoa. The chelicerae of the male from Niue are more robust, darker and much more hairy than those of specimens from Samoa, and the same is true of the other appendages to a slight extent.

#### *Athamas whitmei* Cambridge

1 ♂. Tokelau. 1 ♂. Rarotonga. 2 ♀. Pukapuka. The species is recorded also from New Hebrides, Loyalty Islands, Samoa, Tahiti, Austral Islands, Mangareva, and the Marquesas. The specimen from Tokelau, as compared with ones from Samoa, Rarotonga, and Berland's figure (1935) of one from the Marquesas, is paler. The carapace between the posterior eyes is dark blue while the rest is chestnut coloured, the abdomen pale with only faint markings. Femur I is pale brown on the pro- and retrolateral surfaces. The carapace of the Samoan specimen is almost black with blue iridescence, the abdomen dark except for the red patches, and leg I is dark on both surfaces. The carapace of the Rarotongan specimen is dark chestnut. Berland (1933) records that the colour is variable and two females from Hitikau in the Marquesas were almost black.

#### *Thorellia ensifera* Thorell

3 ♀, 2 ♂. Tokelau. 2 ♀, 1 ♂. Pukapuka. 1 ♀, 2 ♂, and 1 imm. Rarotonga. This species is very widespread, from the East Indian Islands across the Pacific to Pitcairn and Henderson Islands. Berland (1935) figures a male in which the carapace is dark and the abdomen has a transverse zigzag. In specimens from Samoa the part of the carapace behind the eyes has a central dark streak, a dark margin and a horizontal dark band halfway between the eyes and the margin. The zigzag on the abdomen usually forms a broad transverse band. The Tokelau specimens are paler and the markings are scarcely discernible, whereas the others resemble the Samoan specimens except that the markings on the carapace of

those from Rarotonga are more strongly developed.

*Hasarius albocircumdatus* (L. Koch)

1♂ imm. Tongatabu. This specimen may belong to this species, already recorded from Tahiti.

*AVARUA* gen. nov.

Carapace flat above, thoracic groove small, situated halfway between the level of PLE and the posterior margin. Leg I stoutest, 3 pairs of ventral spines on metatarsi I and II and on tibia I. Tooth on the retromargin of the cheliceral groove deeply serrated.

The genus is similar to *Efate* Berland but differs in the position of the thoracic groove, the divided instead of entire retrolateral tooth and the arrangement of spines.

Type species: *A. satchelli* n. sp. It is named after the place in Rarotonga where this species was collected.

*Avarua satchelli* n. sp.

Fig. 1

1♂. Avarua, Rarotonga. Collected by Dr. G. H. Satchell, 1949.

**MALE.** Length 5.40 mm. Carapace, sternum, chelicerae, palps, and first legs yellowish brown. Carapace dark in the ocular area and round the edge, palps with a dark streak on the dorsal side of the two distal joints. Abdomen and other legs paler. Dorsal side of abdomen browner towards the anterior end and grey near the spinnerets, three pairs of lateral markings, ventral side pale.

**Carapace:** Length 1.60 mm., breadth 1.35 mm. Flat on top, especially the ocular area and back as far as the thoracic groove which is minute, longitudinal and situated halfway between a line joining the PLE and the posterior end of the carapace. Carapace slightly widest at the level of the second legs.

**Eyes:** Ratio of eyes AM:PL:AL:PM = 224:106:102:39. Ratio of their distances apart AM-AM, 20; PM-PM, 585; PL-PL, 540;

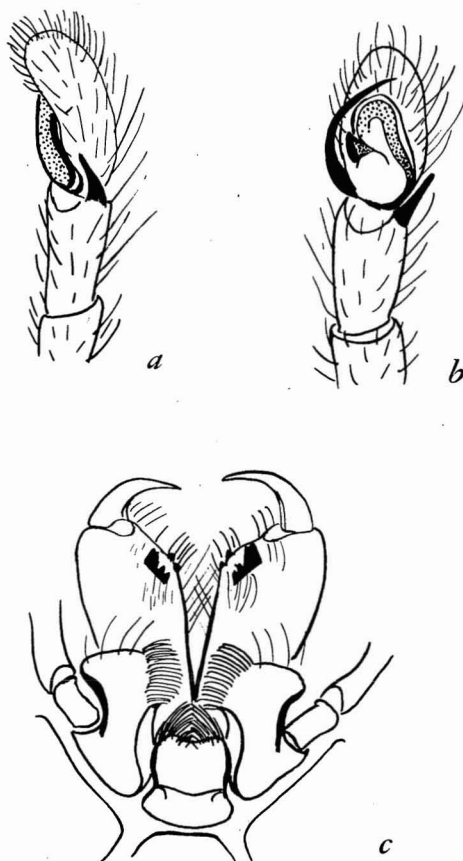


FIG. 1. *Avarua satchelli* gen. et sp. nov., male. a, Retrolateral view of left palp; b, ventral view of left palp; c, ventral view of mouth parts.

AL-PM, 158; PM-PL, 150. Breadth of anterior row of eyes 1.12 mm.

**Chelicerae:** Fissidentate. A large blade on the retromargin of the groove almost divided into 3 teeth, the dorsal one largest and with a bifurcate point. Two teeth at the ventral end of the promargin.

**Maxillae:** Long, the distal part much wider than the rest, its median corner with a scopula, its outer one forming a rounded lobe with a dark margin.

**Lip:** Longer than broad. Notched at the tip and on each side near the base for the bases of the maxillae.

**Sternum:** Length 0.99 mm., breadth 0.59

mm. Slightly notched opposite the bases of the legs.

*Palp*: Bulb small, as in Figure 1. One short spine on the dorsal side of the femur.

<i>Legs</i> :	1	4	2	3	palp
	1.93	1.49	1.22	1.10	0.75

	FEMUR	PATELLA AND TIBIA	META- TARSUS	TARSUS	TOTAL
I	1.26	1.27	0.76	0.45	3.74
II	0.86	1.16	0.47	0.33	2.81
III	0.80	0.88	0.54	0.32	2.53
IV	1.05	1.34	0.75	0.31	3.45
Palp	0.67	0.64	...	0.43	1.74

Tibial Index I 15.2

Tibial Index IV 15.3

First leg much the heaviest. Spines: Femur, none on I, other legs with a distal dorsal pair and two single proximal ones. Tibia; I, three ventral pairs, IV, one prolateral distal. Metatarsus; I and II, three ventral pairs, III and IV with one prolateral distal.

*Abdomen*: Length 2.72 mm., breadth 0.96 mm. Long and cylindrical. Anterior spinnerets stout and parallel, the remainder slender and radiating, arranged in a line dorsal to the bases of the anterior ones.

*Trite longipalpis* n. sp.

Fig. 2

1♂. Tongatabu. 1952.

**MALE**. Length 7.84 mm. Carapace chestnut brown, darker round the edge, with black surrounding the eyes but not in the ocular area. Chelicerae, palps, lip, maxillae, and leg I, except the tarsus, chestnut brown. Other legs and tarsus I, pale. Abdomen pale with narrow longitudinal grey streaks along the sides, interrupted by three oblique pale areas, leaving three roughly triangular pale areas on the dorsal side which decrease in size backwards. The anterior dorsal area has two grey streaks along it.

*Carapace*: Length 3.78 mm., breadth 3.00 mm. Rounded in outline. Small longitudinal thoracic groove behind the PLE about one-third the distance towards the posterior margin.

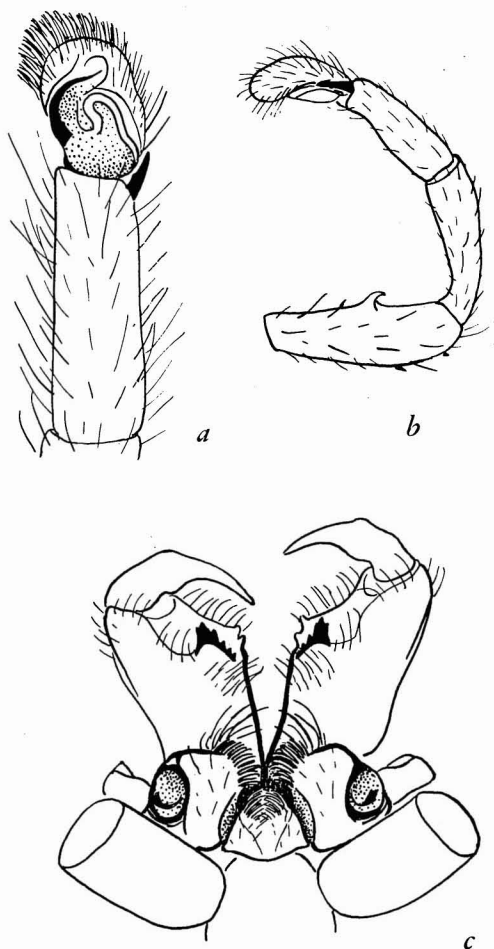


FIG. 2. *Trite longipalpis* sp. nov., male. *a*, Ventral view of left palp; *b*, retrolateral view of left palp; *c*, ventral view of mouth parts.

*Eyes*: Ratio of eyes AM:AL:PL:PM = 142:85:85:26. Ratio of their distances apart AM-AM, 10; AM-AL, 27; PM-PM, 406; PL-PL, 382; AL-PM, 91; PM-PL, 73. Breadth of anterior row of eyes 2.32 mm.

*Chelicerae*: Stout, convex on the outer (dorsal) margin where there is a dark ridge, and somewhat concave anteriorly on the prolateral surface. Prolateral margin of the groove with two teeth at its ventral end, from which a dark ridge runs along the ventral margin. In the retrolateral margin of the groove there is a concavity in the dorsal half and a large

tooth at the ventral end. This has four serrations on its ventral side and a high, slightly bifurcate tip. The basal half of the fang is stout, the distal part more slender and tapering. At the point of transition there is something of a flange which bites into the concavity on the retromargin of the groove, and a blunt elevation on the prolateral side.

*Maxillae*: Parallel and elongate. On the ventral surface the central third is a longitudinal elevation with distinct margins. On the median side of the elevation there is a shelf overlapped by the lip and distal to this occupied by a scopula; on the lateral side there is a large hemispherical pit with dark walls and margin.

*Lip*: Longer than broad, truncated distally.

*Sternum*: Length 1.55 mm., breadth 0.98 mm. Convex, not indented opposite the coxae.

*Palp*: Unusually long and leg-like with small bulb. At the centre of the ventral side of the femur is a stout hook curved distally, two distal spines on dorsal side (Fig. 2).

<i>Legs</i> :	1	4	2	3	palp
	2.75	1.83	1.80	1.60	1.52

	PATELLA AND		META- TARSUS	TARSUS	TOTAL
	FEMUR	TIBIA			
I	2.82	4.75	1.82	1.06	10.45
II	2.05	2.80	1.19	0.76	6.81
III	1.91	2.24	1.33	0.60	6.08
IV	2.20	2.62	1.49	0.59	6.91
Palp	1.96	2.93	...	0.86	5.75

Tibial Index I 11.3

Tibial Index IV 13.8

Spines: Metatarsus; I and II, two pairs ventral, III, distally one each pro-, retro- and ventral and one proximal prolateral, IV, three distal. Tibia; I, three ventral pairs, II, two pairs and one single, III, two distal ventral and one each pro and retro, IV, two distal and one proximal ventral, one pro- and two retrolateral. Femur; I and II, one pair distal and dorsal and two single dorsal, III and IV,

three distal and dorsal and two single dorsal.

*Abdomen*: Length 4.18 mm., breadth 2.41 mm.

The generic allocation of this species is doubtful, but it seems to resemble *T. gracilipalpis* Berland (1929) in many ways. It differs in the palps and the teeth on the chelicerae.

## LYCOSIDAE

### *Lycosa tongatabuensis* Strand

1 ♀, 1 ♂. Pukapuka. Though smaller and paler than specimens from Samoa, they seem to belong to this species. According to Berland, it is widespread, occurring also in Tonga, Tahiti, and the Tuamotus.

### *Lycosa* sp.

1 ♀. Tongatabu. This seems to be a different species with pale carapace, abdomen without pattern and legs not ringed. Legs long, especially IV. Epigynum very small. It does not seem desirable to describe this as a new species without comparative material, as many of the Lycosidae are not adequately described.

## THERIDIIDAE

### *Conopistha samoensis* (L. Koch)

2 ♀ and 1 imm., 2 ♂ and 1 imm. Tongatabu. on webs of *Nephila*. The species was described from Samoa and has been recorded also from New Caledonia, New Hebrides, and Tahiti. As in some of the Samoan specimens the dark band up the side of the abdomen is absent. The male is smaller than that from Samoa and the profile is slightly different, the eye-bearing projection being closer to the anterior one, but the palp is the same in each.

### *Conopistha unimaculata* Marples

2 ♀ imm., 1 ♂. Tongatabu. The species was described from Samoa. A single incomplete female from Niue is much larger, but resembles this species and may belong to it.



## TETRAGNATHIDAE

*Tetragnatha panopea* L. Koch

1 ♀ and 2 imm., 1 ♂. Tokelau. This species is recorded also from Samoa, Ellice, New Hebrides, and Lord Howe Islands. The male is smaller than a Samoan specimen but resembles it in details of palp and chelicera.

## EPEIRIDAE

*Epeira theisi* Walckenaer

1 ♀, 1 ♂. Tongatabu. 28 ♀ and 15 imm., 5 ♂ and 4 imm. Tokelau. 5 ♀ and 5 imm., 1 ♂. Pukapuka. 1 ♀ and 1 imm. Rarotonga. This species is common and widespread throughout the Pacific. The colour of the abdomen is very variable, from almost black with a mid-dorsal longitudinal white band to a pale speckled condition, but all seem to belong to this species.

*Cyrtophora moluccensis* Doleschall

30 ♀. Tongatabu. 1 ♀ and 1 imm. Niue. Widespread in the Pacific.

*Nephila prolixa* L. Koch

1 ♀. Tongatabu. 1 ♀. Niue. This species is recorded previously from Fiji, Tonga, and Samoa. In Samoa there has been no record since that of Koch. Since it is so large and

conspicuous it is unlikely to have been overlooked by both collectors and residents. Possibly the record is of one accidentally introduced and it is no longer present.

*Nephila flagellans* L. Koch

1 ♀ imm., 1 ♂ imm. Tongatabu. Recorded previously from Fiji and Tonga.

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